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(71) Applicant: DNAX RESEARCH INSTITUTE OF MOLECULAR AND CELLULAR BIOLOGY, INC. [US/US]; 901 California Avenue, Palo Alto, CA 94304-1104 (US).

(72) Inventor: MACEVICZ, Stephen, C. ; 1034 Innsbruck Street, Livermore, CA 94550 (US).

(74) Common Representatives: MACEVICZ, Stephen, C. et al.; DNAX Research Institute of Molecular and Cellular Biology, Inc., 901 California Avenue, Palo Alto, CA 94304-1104 (US).

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(54) Title: DNA SEQUENCING BY MULTIPLE MIXED OLIGONUCLEOTIDE PROBES

(57) Abstract

A method is provided for sequencing nucleic acids without the need to separate similarly sized DNAs or RNAs by gel electrophoresis. The method relies on the separate hybridization of multiple mixed oligonucleotide probes to a target sequence. The mixed oligonucleotide probes comprise sequences of fixed and non-fixed bases corresponding to every possible permutation of fixed and non-fixed bases less than or equal to the length of the probes. For each probe, the hybridizations provide the number of times the probe's particular sequence of fixed bases appears in the target sequence. The target sequence is then mathematically reconstructed from this data and a knowledge of the probe sequences.